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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/589,588

06/08/2000

Akira Kitamura

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12/28/2004

IP DEPARTMENT OF PIPER RUDNICK LLP
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EXAMINER

DANG, THUAN D

ART UNIT

PAPER NUMBER

1764

DATE MAILED: 12/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/589,588

Applicant(s)KITAMURA ET AL. **Examiner**

Thuan D. Dang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 December 2004.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,5,6,13 and 17-29 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1,3,5,6,13 and 17-29 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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Claims 1, 3, 5, 6, 13, and 17-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over King et al (5,952,535) alternatively in consideration with the admitted art disclosed in the specification of this application.

King discloses a process of transalkylation (selected species) comprising contacting a starting material containing C₉+ aromatics and benzene and a very minor amount of saturated hydrocarbons 0.02 (mole %) (non-aromatics) and 0.72 UNIDENTIFIED by distillation of a catalytic reformer product in the presence of hydrogen and a catalyst containing H-MOR and 0.25 wt% of a metal such as Re to convert benzene and other aromatics to a product containing C₇₋₈ aromatics under the condition of temperature and pressure as used by applicants (the abstract; col. 3, lines 7-30; col. 4, lines 25-49; table 1 on column 8; col. 8, lines 20-35; col. 9, lines 15-26; col. 10, lines 34-37).

The examiner notes that while applicants claim using a starting feed containing at least 10% by weight which is distilled to reduce its content of non-aromatics in the feed of 1 % by weight or less as called for in claim 1, 0.5 % by weight or less as called for in claim 18, and 0.1 % by weight as called for in claim 24, King discloses using a feed a very minor amount of non-aromatic compounds only 0.02 saturated hydrocarbons and 0.72 % mole of unidentified substance (maybe non-hydrocarbon or aromatic or non-aromatic hydrocarbons).

The examiner cannot decide if 0.72 % by mole of unidentified substance is non-hydrocarbon or hydrocarbon (aromatic or non-aromatic).

Assuming arguendo that all of 0.72 mole % of this unidentified substance were non-aromatic hydrocarbons. The assumed amount of the non-aromatic hydrocarbon would be 0.74 mole %.

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Assuming arguendo that assumed 0.74 % by mole of non-aromatics in the King feed were greater than 1 wt% in the King feed based on weight, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the King process by using a feed containing less than 1 wt% of non-aromatics or removing this minor amount to less than 1 wt% to arrive at the applicants' claimed process since it has been established by the patent law that if range of prior art and claimed range do not overlap, obviousness may still exist if the ranges are close enough that one would not expect a difference in properties. *In re Woodruff* 16 USPQ 2d 1934 (Fed. Cir. 1990); *Titanium Metals Corp. V. Banner* 227 USPQ 773 (Fed. Cir. 1985); *In re Allers*, 105 USPQ 233 (CCPA 1955).

Further, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the King process by using a feed containing a lower amount of impurities such as less than 0.5 wt%, or even less than 0.1 wt% of non-aromatic including saturated and unidentified substances to arrive at the applicants' claimed process since it is expected that a purer reactants would yield better product. Further, it has been held by the patent law that the selection of reaction parameters such as temperature and concentration would have been obvious. More particularly, where the general conditions of the claimed are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. *In re Aller* 105 USPQ 233, 255 (CCPA 1955). *In re Waite* 77 USPQ 586 (CCPA 1948). *In re Scherl* 70 USPQ 204 (CCPA 1946). *In re Irmscher* 66 USPQ 314 (CCPA 1945). *In re Norman* 66 USPQ 308 (CCPA 1945). *In re Swenson* 56 USPQ 372 (CCPA 1942). *In re Sola* 25 USPQ 433 (CCPA 1935). *In re Dreyfus* 24 USPQ 52 (CCPA 1934).

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As discussed above, the transalkylation feedstock of King requires only a minor amount of non-aromatics and one having ordinary skill in the art has recognized that the benzene fraction extracted from gasoline contains a large amount of non-aromatics (the paragraph bridging pages 2 and 3 of the specification of this application).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the King process by employing the benzene fraction derived from gasoline in the place of the benzene feed in the King process since it is expected that using of any benzene for the transalkylation with other higher aromatics in the King process yields similar results.

It would have been obvious to one having ordinary skill in the art at the time the invention was made by further modified the King process by removing any non-aromatics from the mixture of benzene and the C9 aromatics by any separation method such as distillation as discussed above to arrive at the applicants' claimed process since the transalkylation feed of King requires only a minor amount of non-aromatics.

Regarding claim 11, King appears to disclose a feed containing a low concentration of xylene.

Regarding claim 12, the temperature and pressure can be found on column 9, lines 10-35.

The ratio of hydrogen and the hydrocarbons can be found on column 9, lines 27-28.

Regarding claims 14 and 15, a review of 112 rejection is necessary.

Response to Arguments

Applicant's arguments filed 5/24/2004 have been fully considered but they are not persuasive.

The argument that as demonstrated in examples, applicants discovered that lowering the content of non-aromatic compounds by distillation to produce a material having a non-aromatic compound of 1% by weight or less would yield unexpected results such as a lower consumption of hydrogen and a longer life of catalyst is not persuasive since applicants do not show data to compare a process of using a feed containing high amount of impurities (10% of non-aromatic hydrocarbons) with a process of using a feed containing only 0.1% of non-aromatic hydrocarbons. Note that the prior art process uses a feed containing only 0.74 % mole of assumed non-aromatics. Applicants are reminded that showing unexpected results must compare closest prior art. *Ex parte Beck* 9 USPQ 2d 2000 (BPAI 1987); *In re Burkel* 201 USPQ 67 (CCPA 1979); *In re Merchant* 197 USPQ 785 (CCPA 1976).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thuan D. Dang whose telephone number is 571-272-1445. The examiner can normally be reached on Mon-Thu.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thuan D. Dang
Primary Examiner
Art Unit 1764

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A handwritten signature in black ink, appearing to read 'Thuan D. Dang', with a stylized, sweeping flourish extending to the right.